

WHAT IS CLAIMED IS:

- Sub A11
1. An antenna structure adapted to be used in an ablation device, comprising:  
a monopole antenna operably disposed at a distal end of the ablation device and having a predetermined shape defining an outer emission surface from which electromagnetic energy is emitted, the antenna forming the distal tip of the ablation device,  
wherein the predetermined shape of the antenna results in the creation of a relatively uniform electromagnetic field pattern.
  2. The antenna structure of claim 1, wherein the electromagnetic energy emitted is sufficient to ablate biological tissue.
  3. The antenna structure of claim 1, wherein the antenna is encased in a biocompatible material defining an outer surface.
  - Sub B1  
4. The antenna structure of claim 3, wherein the biocompatible material is Teflon.
  5. The antenna structure of claim 1, wherein the antenna is formed from stainless steel.
  - Sub A21  
6. An ablation device for ablating biological tissue, comprising:  
an elongated flexible tubular member adapted to be inserted into a patient's body and having a distal end;  
a transmitting means operably attached to the tubular member for transmitting ablation energy therethrough;  
a monopole antenna attached to the distal end of the tubular member and having a predetermined shape defining an outer emission surface from which electromagnetic energy is emitted, the antenna forming the distal tip of the ablation device and operably attached to the transmitting means,  
wherein the predetermined shape of the antenna results in the creation of a relatively uniform electromagnetic field pattern.
  - Sub A31  
7. The ablation device of claim 6 further comprising a sensing means disposed on the distal end of the tubular member proximal to the antenna for sensing electro-physiological signals.
  8. The ablation device of claim 6, wherein the transmitting means is a transmission line.

Sub  
B1

9. The ablation device of claim 8, wherein the transmission line is a coaxial cable.
10. The ablation device of claim 9, wherein the sensing means is at least one electrode.

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